

OIB - P-3 Orion - WFF 04/19/19 Science Report

Aircraft: [P-3 Orion - WFF \(See full schedule\)](#)

Date: Friday, April 19, 2019

Mission: OIB

Mission Location: ICESat-2 Arctic Ocean #3

Mission Summary:

Mission: ICESat-2 Arctic Ocean #3 (long line)

Priority: Baseline

This new flight for 2019 flies out along a single ICESat-2 ground track, selected and timed so that our aircraft and the spacecraft fly the track as closely as possible in time, and also with the track drift-corrected according to winds measured from the aircraft. The particulars of the technique we will use to fly the track will depend on knowledge of ICESat-2's pointing accuracy just prior to the time of this flight. Options include out-and-back along the same or parallel and offset lines, varying the altitude of one or both lines, or even a four-segment line. The general idea is to obtain a composite swath wide enough to capture any likely pointing offset of the spacecraft. See Appendix D for more details on the design of these flights.

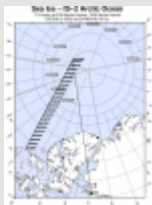
Yesterday's forecast matched the imagery and we opted for a much-needed sea ice mission, with a zero-latency underflight of RGT 0325 at 13:10:46 UTC. An uneventful transit over Ellesmere, Axel Heiberg and Ellef Ringnes Islands brought us to the start of the mission, which we flew at 3,500 ft AGL. To our pleasant surprise, the cloud conditions were scattered and better than forecast. Headwall SWIR was unable to be started at the beginning of the line, likely due to the cold high-altitude transit. Clear conditions lasted for a few minutes for we entered a layer that we dropped below somewhat by descending to 3,000 ft AGL prior to the time of ICESat-2 passing overhead. At that time, there was moderate haze above us and what appeared mostly ridged first-year sea ice below us, for which observations were challenged by the flat light conditions. About a third of the way through the mission and ~25 minutes after the ICESat-2 coincident pass, the skies began to clear and the light conditions improved and we returned to 3,500 ft AGL. About two thirds of the way through the mission, haze descended again and we lost the surface for about 10 minutes. ATM estimated 90% altimetry data collection. We didn't see many leads in the first third of the mission, but many appeared after that. We corrected our course for sea ice drift relative to the time since ICESat-2's passing multiple times during flight. Headwall SWIR again froze occasionally once it warmed up sufficiently, losing about the first hour of the survey. Snow radar performed well. We conducted a ramp pass at 1,200 ft AGL.

Attached images/files:

1. Map of today's mission (John Sonntag / NASA)
2. KML of today's mission (John Sonntag / NASA)
3. Land-terminating glacier terminus and snow-covered proglacial outwash on Ellef Ringnes Island (Joe MacGregor / NASA)
4. First-year and multi-year floes about a third of the way through the mission (Jeremy Harbeck / NASA)
5. CAMBOT image of leads slicing through pressure ridges (Jeremy Harbeck / NASA)

Images:

Map of today's mission



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Land-terminating glacier terminus and snow-covered proglacial outwash on Ellef Ringnes Island



[Read more](#)

First-year and multi-year floes about a third of the way through the



[Read more](#)

CAMBOT image of leads slicing through pressure ridges



[Read more](#)

Submitted by: Joseph MacGregor on 04/21/19

Related Flight Report:

P-3 Orion - WFF 04/19/19

Flight Number: #2091: 2019 OIB Science Flight #12

Payload Configuration: Operation IceBridge

Nav Data Collected: No

Total Flight Time: 7.6 hours

Submitted by: Kelly Griffin on 04/22/19

Flight Segments:

From:	BGTL	To:	BGTL
Start:	04/19/19 10:50 Z	Finish:	04/19/19 18:28 Z
Flight Time:	7.6 hours		
Log Number:	19P017	PI:	Joseph MacGregor
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		
Miles Flown:	2104 miles		

Flight Hour Summary:

	19P017
Flight Hours Approved in SOFRS	250
Total Used	216.3
Total Remaining	33.7

19P017 Flight Reports


Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
03/26/19	#2053: 2019 OIB ATF	Check	0.9	0.9	249.1	0

03/27/19	#2059: 2019 OIB PTF-Laser	Check	2.3	3.2	246.8	0
03/28/19	#2061: 2019 OIB PTF-Radar	Check	3.2	6.4	243.6	0
04/01/19	#2068: 2019 OIB WFF-BGTL Transit Flight	Transit	6.9	13.3	236.7	2458
04/03/19	#2070: 2019 OIB Science Flight #1	Science	7.6	20.9	229.1	1938
04/05/19	#2072: 2019 OIB Science Flight #2	Science	7.7	28.6	221.4	1910
04/06/19	#2073: 2019 OIB Science Flight #3	Science	7.2	35.8	214.2	2000
04/08/19	#2075: 2019 OIB Science Flight #4	Science	6.9	42.7	207.3	1780
04/09/19	#2076: 2019 OIB Science Flight #5	Science	7.8	50.5	199.5	2045
04/10/19	#2081: 2019 OIB Science Flight #6	Science	10.1	60.6	189.4	2702
04/11/19	#2082: BGSF- BGTL Transit	Transit	2.2	62.8	187.2	696
04/12/19	#2083: 2019 OIB Science Flight #7	Science	7.2	70	180	2109
04/15/19	#2086: 2019 OIB Science Flight #8	Science	4.8	74.8	175.2	1243
04/16/19	#2087: 2019 OIB Science Flight #9	Science	7.6	82.4	167.6	2036
04/17/19	#2088: 2019 OIB Science Flight #10	Science	7.7	90.1	159.9	1937
04/18/19	#2090: 2019 OIB Science Flight #11	Science	7.8	97.9	152.1	2008
04/19/19	#2091: 2019 OIB Science Flight #12	Science	7.6	105.5	144.5	2104
04/20/19	#2092: 2019 OIB Science Flight #13	Science	6.9	112.4	137.6	0
04/22/19	#2094: 2019 OIB Science Flight #14	Science	6.6	119	131	1867
04/23/19	#2099: 2019 OIB Science Flight #15	Science	7.7	126.7	123.3	1979
04/25/19	#2102: 2019 OIB BGTL-KBGR Transit Flight	Transit	6.2	132.9	117.1	0
04/26/19	KBGR to BGSF Transit	Transit	5.7	138.6	111.4	0
05/05/19	2019 OIB Science Flight #16	Science	7.8	146.4	103.6	0
05/06/19	2019 OIB Science Flight #17	Science	8.4	154.8	95.2	0
05/07/19	2019 OIB Science Flight #18	Science	8.5	163.3	86.7	0
05/08/19	2019 OIB Science Flight #19	Science	8	171.3	78.7	0
05/12/19	2019 OIB Science Flight #20	Science	9	180.3	69.7	0
05/13/19	2019 OIB Science Flight #21	Science	7	187.3	62.7	0
05/14/19	2019 OIB Science Flight #22	Science	7.9	195.2	54.8	0

05/15/19	2019 OIB Science Flight #23	Science	8.3	203.5	46.5	0
05/16/19	2019 OIB Science Flight #24	Science	6.3	209.8	40.2	0
05/17/19	2019 OIB Transit	Transit	6.2	216	34	0
05/17/19	2019 OIB Transit	Transit	0.3	216.3	33.7	0

Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.

Flight Tracks:

Attachment	Size
 2_siis2arcticocean_labels.kml	14.41 KB

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